Academic course description

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| BACHELOR ‘S PROGRAMME2nd YEAR OF STUDY, 1st SEMESTER |

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| **Course title** | **General Chemistry** |
| Course code |  |
| Course type | full attendance |
| Course level | 1st cycle (bachelor’s degree) |
| Year of study, semester | 2nd year of study, 1st semester |
| Number of ECTS credits | 4 |
| Number of hours per week | 4 (2 lecture hours + 2 seminar hours) |
| Name of lecture holder | Assoc.prof.PhD. Danut Cozma |
| Name of seminar holder | Assoc.prof.PhD . Danut Cozma |
| Prerequisites | Advanced level of English  |
| A | **General and course-specific competences** |
|  | **General competences:*** Possession of cognitive / cognitive transfer skills by analogy specific to the domain and field of specialization and their proper use in a given professional context.Possession of cognitive skills / techniques and methods of learning / assessment applicable to the field and field of specialization and their use to identify their own training needs / training needs in a team-building type process.

**Course-specific competences**:* Appropriate use of the theoretical foundations of applied engineering sciences. Providing research support activities. Use of standard laboratory or industrial laboratory equipment for conducting research experiments
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| B | **Learning outcomes** |
|  | Upon successful completion of this discipline, students will be able to:-Explates the correlation between positioning in the periodic system - the chemical properties of the elements.-Explates the correlation between the type of chemical bonds and the properties of the substances |
| C | **Lecture content** |
|  | * Fundamental laws of chemistry.
* Classification of elements. Study of periodic and non-periodic properties. Non-metallic function and metallic function of the elements.
* Types of chemical bonds. Correlation chemical bonds-properties of substances.
* Chemical reaction.
* Metals and non-metals - methods of obtaining and purifying. Compound substances: oxides, bases, acids, salts
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| D | **Recommended reading for lectures** |
|  |  1.Mirela Goanță, Ioana Aurelia Gorodea. Fundamentele chimiei. Ed. Ștef, 2012. 2.S.Ifrim, I.Rosca. Chimie generala. Ed.Tehnica, Bucuresti, 1989. 3. Gh. Marcu, M. Rusu, V. Coman – Chimie anorganica. Semimetale si nemetale, Editura Eikon, 2007. 4.D.Gânju,”Substanţe tehnice anorganice”, Ed.Univ.”Al.I.Cuza” Iaşi1997 5. I.I.Nicolaescu,V.G.Canţer,”Fizica corpului solid”, Chişinău,1991. 6. Industrial inorganic pigments I ed. by Gunter Buxbaum. Wiley-VCH, 1998. 7. Gerald F. Dionne. Magnetic Oxides. Springer Science+Business Media, LLC 2009.  8. Frank J. Owens, Charles P. Poole, Jr..The New Superconductors. Kluwer Academic Publishers.2002. |
| E | **Seminar content** |
|  | * Processing of work safety rules. Presentation of the laboratory theme
* Chemical calculations.
* Solutions. Modes of expression of solution concentrations. Determination of solubility of substances. Determination of crystallization water from crystalline hydrides - CuSO4 \* 5H2O.
* Methods for purification and separation of substances (filtration, recrystallization, sublimation).
* Physical and chemical transformations
* Classification of chemical reactions. Chemical reactions in aqueous medium (proton transfer reactions, electron transfer reactions).
* Obtaining classes of compounds of metals and non-metals.
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| F | **Recommended reading for seminars** |
|  | 1. J. A. Beran. Laboratory Manual for Principles of General Chemistry. John Wiley & Sons.2011. 2.Handbook of preparative Inorganic Chemistry, Edited by G.Bauer,A.Press, London 1963. 3.Spencer L. Seager, Michael R. Slabaugh. Safety-Scale Laboratory Experiments for Chemistry for Today: General, Organic, and Biochemistry, 7e. Brooks/Cole, Cengage Learning. 2011.  |
| G | **Education style** |
| learning and teaching methods | Lecture, debate, conversation, laboratory experiment, exercise and problem solving |
| assessment methods | * Written exam
* Assessment along the way
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| Language of instruction | English |